

REMARKS

Claims 1-17 are pending in this application. Claims 1-17 are rejected. Claims 1-4, 8-11, and 16-17 are rejected under 35 USC 103(a). The abstract of the disclosure is objected to under 37 CFR 1.72(b) and has been replaced with one that is within the 150 word limit. Reconsideration is requested.

Claim Rejections - 35 USC § 103

Claims 1-4, 8-11, 16-17 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,933,490 to White et al., in view of Fratto, M., *More than Throughput: Managed Modem Chassis, Network Computing*, Vol. 7 no. 17, pp. 1-5, Nov. 1966 (hereinafter Fratto I), and further in view of U.S. Patent No. 4,629,832 to Carson et al.

Claims 5-7 and 12-15 are rejected under 35 USC 103(a) as being unpatentable over White in view of Fratto, further in view of Carson, and further in view of Fratto, M., *Accessing the Enterprise: Large-Scale RAS to the Rescue, Network Computing*, pp 1-8, April, 1999 (hereinafter Fratto II).

First, with respect to the second listed rejection of claims 5-7 and 12-15, applicants do not concede the prior art status of Fratto II, which was published April 5, 1999, less than one year prior to the present application filing date. Accordingly, applicants reserve the right to swear behind the Fratto II reference.

Even assuming Fratto II is prior art, the combination of prior art do not teach applicants' invention as it is now claimed, for reasons that will be detailed below.

Applicants hereby amend independent claims 1, 8, 16 and 17 to clarify what their invention covers. All independent claims now recite one or more features not taught by any of the record art. None of the record art teaches monitoring a used associated channel and waiting until the same becomes substantially unused, as expressly recited in amended claims 1, 16 and 17. None of the record art teaches monitoring any used associated channel and, during such monitoring, awaiting substantial non-use of any remaining associated channels and thereafter communicating a busy condition thereof to the service request switch, as expressly recited in amended claim 8. None of the record art teaches a maintenance scheduler for scheduling off-line maintenance for an access server and the performance of maintenance after a channel-busy signal from a make-busy mechanism and after a determination by a channel usage monitor that no channel is currently in use.

White teaches none of the originally recited determining or monitoring steps, as conceded by the Examiner at page 3 of the Office action. Carson teaches forced manual administration, pool-wide, as by adding or deleting lines therein, not a maintenance scheduling mechanism that involves monitoring use and awaiting non-use. Neither does Fratto I teach awaiting substantial non-use of a channel by use monitoring. Fratto I teaches only the idea of busying out modems prior to taking a server offline for maintenance. While Fratto I may not teach *away* from monitoring and waiting, at page 2, fourth full paragraph, Fratto I certainly does not teach any such patient and user-friendly approach. "We ... establish[ed] a few connections and then [sent] a command sequence to busy out the modems." Fratto II's reference to the need for a maintenance scheduler is a factor favoring non-obviousness, and evidences a long-felt need for applicants' invention. It certainly does not teach *how to* integrate a scheduler into maintenance method and apparatus as claimed.

All this would suggest to one of ordinary skill in the art (without the benefit of the present invention disclosure) that existing uses are terminated almost immediately upon receipt of the busy-out command sequence, i.e. that the users were *booted off* their channels prematurely for maintenance. (Indeed, this would be the result of giving such a busy-out command: When the modem is rendered busy by command, as taught by Fratto I, the communicating modem on the other end of the line almost immediately receives a busy signal and hangs up, whether the voice conversation or modem session is complete or not. The users' call is involuntarily terminated precisely because the maintenance is forced, or commanded, without monitoring use and awaiting non-use.)

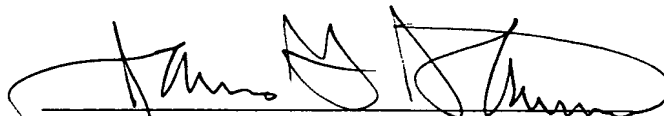
Of course, a disconnection and ultimately an idle condition results from such an abrupt busy-out command. But this does not say that the user became idle while the maintenance person waited patiently for the user to complete his conversation. It says only that the channel became idle as a consequence of the maintenance person's maintenance edict. Accordingly, the art of record fails to suggest the important waiting-for-user-to-become-idle character of the recited steps by which the channel's "use" is monitored and, after an indefinite wait for a condition of substantial non-use by the user, the channel is busied out for maintenance purposes. Such monitoring of channel usage (as by channel usage monitor 34 in Fig. 3; as by action block 102 and decision block 1-4 and the indefinite monitoring and waiting loop embodied therein of Fig. 4) is simply not taught by the record art.

Thus, the currently pending independent claims, as amended hereby, and those dependent from them distinguish over the known prior art including the record art cited by the Examiner and distinguished herein.

Accordingly, applicant requests entry of the amendments and allowance of the application. If further questions remain, please contact the undersigned.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Abstract

The [disclosed]method and apparatus [are for performing]~~facilitate~~ maintenance on a network access server having associated channels, the network access server being operatively coupled with a service request router, e.g. a telephone company (telco) switch. [The method includes]~~They involve~~ first determining whether off-line maintenance is needed on a network access server and if so then communicating a busy condition of any associated channel from the network access server to the telco switch. [The method]~~They~~ further [includes]~~involve~~ monitoring any used associated channel until the used associated channel becomes unused. Thereafter, maintenance may be performed on the network access server. After completion of the maintenance, [the method includes communicating]an idle condition of any associated channel~~is communicated~~ to the telco switch. For the duration of the maintenance on the given access server, new client service requests that may arrive during a busy condition of the network access server are auto-routed to another network access server operatively coupled with the telco switch.

[The apparatus includes a maintenance scheduler for scheduling off-line maintenance for a given network access server. It further includes a channel usage monitor responsive to the scheduler for monitoring usage of the associated channels of the given network access server. Finally, a make-busy mechanism is provided that is responsive to the channel usage monitor and coupled with the telco switch. The make-busy mechanism signals the telco switch that all channels are busy, whereby maintenance is performed on the given network access server after the signaling and upon a determination by said channel usage monitor that no channel is currently in use. There is thus no discernible impact of maintenance on current or future users/clients, and maintenance may be scheduled even during peak use hours of operation of the network.]

In the Claims

1. (Amended) A method of performing maintenance on a network access server having associated channels, the network access server being operatively coupled with a service request switch, the method comprising:

determining whether off-line maintenance is needed on a network access server and if so then communicating a busy condition of any unused associated channel from the network access server to the service request switch;

monitoring any used associated channel and waiting until the used associated channel becomes substantially unused;

when the used associated channel becomes substantially unused, communicating a busy condition of such then-unused channel from the network access server to the service request switch; and [thereafter]

signaling that maintenance on the network access server can be performed.

8. (Amended) A method of temporarily taking offline for service a given network access server having plural associated channels, the given network access server being operatively coupled with a network service request switch, the method comprising:

busying out any unused channels of the given access server and communicating a busy condition thereof to the service request switch;

monitoring any used associated channel;

during said monitoring, awaiting substantial non-use of any remaining associated channels of the given access server and thereafter communicating a busy condition thereof to the service request switch;

signaling that service to the given access server can be performed; and
after such service is completed

communicating a substantially idle condition of the associated channels to the service request switch.

16. (Amended) A computer-readable medium containing a program for performing maintenance on a network access server having associated channels, the network access server being operatively coupled with a service request switch, the program comprising:

instructions determining whether off-line maintenance is needed on a network access server;

instructions communicating a busy condition of any associated channel from the network access server to the service request switch;

instructions monitoring any used associated channel and waiting until the used associated channel becomes substantially unused; [and]

instructions, operative when the used associated channel becomes substantially unused, communicating a busy condition of such then-unused channel from the network access server to the service request switch; and

instructions signaling the network access server that maintenance can be performed, said communicating, said monitoring-and-waiting, said communicating and said signaling instructions being executed selectively upon a determination that off-line maintenance is needed.

17. (Amended) A computer-readable medium containing a program for temporarily taking offline for service a given network access server having plural associated channels, the given network access server being operatively coupled with a network service request switch, the program comprising:

instructions busying out any substantially unused channels of the given access server and communicating a busy condition thereof to the service request switch;

instructions monitoring any used associated channel;

instructions awaiting termination of substantial use of any remaining associated channels of the given access server and thereafter communicating a busy condition thereof to the service request switch;

instructions signaling that service to the given access server can be performed; and
instructions communicating a substantially idle condition of the associated channels to the service request switch, said communicating instructions being executed selectively upon a determination that such service has been completed.